

IN THE CLAIMS:

This is a listing of claims as they currently stand.

1. (Original) A high-intensity discharge lamp including an arc tube, the arc tube comprising:

a translucent ceramic discharge chamber that defines a discharge volume, said chamber having a pair of end sections provided at both ends of a central section;

a pair of feedthroughs, each of said feedthroughs being hermetically sealed within one of said end sections respectively; and

a pair of electrodes, each of said electrodes comprising a tip that extends towards the central section and is connected to one of said feedthroughs,

wherein the discharge chamber is filled with a discharge medium including a metal halide and a starting gas, said metal halide comprising at least halides of Na, Tl, and Tm, and

wherein the ratio ( $MT_m/M$ ) of the mass  $MT_m$  of Tm halide to the total mass  $M$  of said metal halide is within a range of about  $0.4 \leq MT_m/M \leq 0.9$ .

2. (Cancelled).

3. (Original) A high-intensity discharge lamp according to claim 1, wherein the total mass of the halides of Na, Tl and Tm is greater than 90% by weight of the total mass  $M$  of the metal halide.

4. (Previously Presented) A high-intensity discharge lamp including an arc tube, the arc tube comprising:

a discharge chamber having a pair of end sections;

a pair of feedthroughs, each of said feedthroughs being hermetically sealed within one of said end sections of the discharge chamber, respectively;

a pair of electrodes, each of said electrodes being connected to one of said feedthroughs;

wherein the discharge chamber is filled with a discharge medium including a metal halide that comprises at least halides of Na, Tl, In, and Tm and a starting gas; and

wherein the total mass of the halides of Na, Tl, In and Tm is greater than 90% of the total mass of the metal halide.

5. (Previously Presented) A high-intensity discharge lamp including an arc tube, the arc tube comprising:

a discharge chamber having a pair of end sections;

a pair of feedthroughs, each of said feedthroughs being hermetically sealed within one of said end sections of the discharge chamber, respectively;

a pair of electrodes, each of said electrodes being connected to one of said feedthroughs;

wherein the discharge chamber is filled with a discharge medium including a metal halide that comprises at least halides of Na, Tl, In, and Tm and a starting gas; and

wherein the ratio ( $MT_m/M$ ) of the mass  $MT_m$  of said Tm halide to the total mass  $M$  of said metal halide is within a range of about  $0.4 \leq MT_m / M \leq 0.9$ .

6. (Original) A high-intensity discharge lamp including an arc tube, the arc tube comprising:

a discharge chamber having a pair of end sections;

a pair of feedthroughs, each of said feedthroughs being hermetically sealed within one of said end sections of the discharge chamber; and

a pair of electrodes, each of said electrodes being connected to one of said feedthroughs,

wherein the discharge chamber is filled with a discharge medium including a metal halide and a starting gas, said metal halide comprising at least halides of Na, Tl, In, and Tm,

wherein the ratio ( $MT_m/M$ ) of the mass  $MT_m$  of said Tm halide to the total mass  $M$  of said metal halide is within a range of about  $0.4 \leq MT_m / M \leq 0.9$ , and

wherein the total mass of the halides of Na, Tl, In, Tm halides is greater than 90% of the total mass  $M$  of the metal halide.

7. (Previously Presented) A high-intensity discharge lamp including an arc tube, the arc tube comprising:

a discharge chamber having a pair of end sections;

a pair of feedthroughs, each of said feedthroughs being hermetically sealed within one of said end sections of the discharge chamber, respectively;

a pair of electrodes, each of said electrodes being connected to one of said feedthroughs;

wherein the discharge chamber is filled with a discharge medium including a metal halide that comprises at least halides of Na, Tl, In, and Tm and a starting gas; and

wherein the ratio  $(MTm + MTl + MIn)/M$  of the sum of the mass  $MTm$  of the Tm halide and the mass  $MTl$  of the Tl halide and the mass  $MIn$  of the In halide to the total mass  $M$  of the metal halide is within a range of about  $0.61 \leq (MTm + MTl + MIn)/M \leq 0.9$ , and wherein the ratio  $(MIn/M)$  of the mass of the In halide to the total mass  $M$  of the metal halide is within a range of about  $0.01 \leq MIn/M \leq 0.1$ .

8. (Original) A high-intensity discharge lamp according to claim 6, wherein the ratio  $(MTm + MTl + MIn)/M$  of the sum of the mass  $MTm$  of the Tm halide and the mass  $MTl$  of the Tl halide and the mass  $MIn$  of the In halide to the total mass  $M$  of the metal halide is within a range of about  $0.61 \leq (MTm + MTl + MIn)/M \leq 0.9$ , and wherein the ratio  $(MIn/M)$  of the mass of the In halide to the total mass  $M$  of the metal halide is within a range of about  $0.01 \leq MIn/M \leq 0.1$ .

9. (Original) A high-intensity discharge lamp according to any one of claims 1, 3, 4 and 6, wherein the metal halide further comprises at least one metal halide selected from the group of metals consisting of Ce, Pr, Ca, Cs, Li, Mg and Rb.

10. (Previously Presented) A high-intensity discharge lamp according to any one of claims 1, 3-6, wherein the deviation in chromaticity (d.u.v.) of the light, emitted during the life of the lamp, on the x-y chromaticity coordinates (CIE 1931) is within the range of about -0.006 to +0.010, wherein the correlated color temperature is within the range of about 3500 to 5000 K, wherein the average color rendition index value (Ra) is within the range of about 75-95, and wherein the luminous efficacy is within the range of about 95-130 lm/W.

11. (Original) A high-intensity discharge lamp according to claim 10, wherein the deviation in chromaticity (d.u.v.) of the light, emitted during the life of the lamp, on the x-y chromaticity coordinates (CIE 1931) is within the range of about -0.003 to +0.007

12. (Previously Presented) A high-intensity discharge lamp according to any one of claims 1, 3-6, further comprising an outer jacket, which hermetically encloses said arc tube, and a pair of feeder members, which are configured to support and position the arc tube relative to said outer jacket, wherein the pair of feeder members is sealed within an end of said outer jacket and is electrically connected to said feedthroughs, and wherein the pressure in the volume defined by the outer jacket at ambient temperature is at most 133 Pa.

13. (Previously Presented) A high-intensity discharge lamp according to any one of claims 1, 3-6, further comprising an inner shroud disposed within an outer jacket, which hermetically encloses said arc tube, and surrounding the arc tube, said shroud being made of quartz glass whose spectral transmittance in the wavelength range of about 220-370 nm is about 60 % or higher.

14. (Previously Presented) A lighting device comprising a lamp according to any one of claims 1, 3-6 and a lighting circuit configured to supply a voltage to the lamp, wherein the lamp voltage waveform when the lamp is lit is a rectangular waveform in the range of about 100 Hz - 1 kHz, and wherein the light circuit has a secondary open circuit voltage in the range of about 150 – 400 V.

15. (Previously Presented) A lighting device comprising a lamp according to any one of claims 1, 3-6 and a lighting circuit which is configured to light said lamp by a dimming operation.

16. (Original) A high intensity discharge lamp according to claim 1, wherein the end sections are tubular sections which have a constant diameter.

17. (Original) A high intensity discharge lamp according to claim 1, wherein the central section is provided with a given diameter.

18. (Original) A high intensity discharge lamp according to claim 17, wherein the internal diameter of the central section is greater than the internal diameter of the end sections.

19. (Original) A high intensity discharge lamp according to claim 17, wherein the central section is bulgy or ramp-like with increasing diameter including a most extended diameter.

20. (Previously Presented) A high intensity discharge lamp according to any one of claims 1 and 6, wherein the lamp further comprises an outer jacket which hermetically encloses said arc tube.

21. (Original) A high intensity discharge lamp according to claim 20, further comprising a pair of feeder members configured to support and position the arc tube within the outer jacket, the feeder members being sealed within an end of said outer jacket and electrically connected to said feedthroughs.